HF Digital Proposal to FCC

Janis Carson, AB2RA, Ron Kolarik, K0IDT,
Lee McVey, W6EM & Dan White, W5DNT

In Memory of Our Dear Friend, Terry Gerdes, AB5K (SK)

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“Overview of Presentation”

- Objectives
- Bedrock Principles
- Spectrum Issues
- Band Planning
- Third Party Monitoring
- Third Party Agreement Issues
- Recommendation to FCC

“Objectives”

- Propose Structure of a “Win-Win” Compromise through an Omnibus RM (Parts of NPRM 16-239 & RM-11831 with certain modifications)
- Avoid Current “Winner Takes All” Approach
- Allow for Future Growth and Experimentation
- Resolve Major Digital Mode Issues Effecting Amateur Radio and its Future
- Identify and Resolve Operational Issues
- Seek Meaningful Compromise on Multiple Current RM Issues
- Look for Ways to Peacefully Coexist

“Two Fundamental Bedrock Principles*”

1. All Data in Amateur Radio Must Be Open and Easily Monitored Over the Air for True Meaning

2. All Narrowband Modes < 500 HZ BW (e.g. CW, RTTY, FT-8, FT-4, PSK31, JT-65, etc.) Must Be Protected and Able to Operate in Spectrum Devoid of All ACDS Robot Stations of Any Bandwidth

***This proposal increases 97.221(b) segments for ACDS/wideband data and eliminates 97.221(c), provided that only transparent data modes are used which are able to be intercepted, over-the-air, for meaning by the public.**

Spectrum Issues
"Regulation by Band Segments = The Solution"*

- Unlimited Bandwidth Over Entire Non-phone Bands is Unacceptable, PERIOD! This Has Been a "CORE ISSUE"!
- Nobody Wants 16-239 Unlimited BW as NPRM Written Now!
- ACDS ARE THE PROBLEM, NOT "Peer to Peer"!
- Eliminate 97.221(c) and Confine ACDS to ACDS Sub bands ***….BUT….***
- Realign & Expand Transparent ACDS Sub Bands to Favor EmComm
- This Expansion Assumes Only Open "Over the Air" Data Transparency
- Eliminate Symbol Rate Limit within ACDS Sub Bands Only
- Current CW/RTTY/Data Segments, ≤ 500 Hz BW "Non ACDS" Modes Only
- Encourage "Listen Before Transmit"

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Assumptions in Band Planning for ACDS

- Compliance with FCC Part 97 Rules Is Not Optional
- FCC Part 97 Rules Are Not “Suggestions"
- Compliance with FCC Part 97 Rules is not “Unduly Burdensome“
- FCC Rules Apply to ALL Amateur Operators Equally
- No One Operator or Group is Exempt

Assumptions in Band Planning for ACDS

- ACDS = Any Automatically Controlled Data Stations, Including Store and Forward Stations (IARU Region 2 Definition)
- VHF/UHF/AREDN Already the Primary Player in Most Local EmComm Plans
- EmComm is ARRL's Key Driver for Supporting Winlink
- Real World EmComm Involves Traffic Typically "In State" vs. Global
- EmComm Is Not a "Dxing " endeavor, ie. NVIS!
- 80 & 40 meters are Prime HF EmComm Real Estate for Shorter Haul Traffic
- 20 meters a Prime HF EmComm Band with Highest Long Haul Reliability
- 10 meters a Good Learning Ground, i.e. Nighttime Ground Wave
- WARC Bands are Smaller, Typically Less Suitable for EmComm
- All IARU Regions Recommend No Contesting on WARC Bands

Assumptions in Band Planning for ACDS
IARU Resolution 17-1 (May 30, 2019)

- IARU Region 2 calls on its Member Societies to remember the policy of not holding contests in the bands that we have access to on a secondary basis, that is, there are other users on those frequencies with a greater right than radio amateurs have, and in the bands that are narrow in their spectrum.
- There bands include:
  135.7 – 137.8 kHz
  472 – 479 kHz
  5,351.5 – 5,366.5 kHz
  10.1 – 10.15 MHz
  18.068 – 18.168 MHz
  24.890 – 24.990 MHz

Current FCC 97.221(b) vs. July 2019 Proposed* ACDS/Wideband Sub Bands

Band	Current ACDS FCC 97.221(b)	Current FCC 97.221(b) Allowance, KHz	July Proposed* ACDS/Wideband	Proposed* Allowance, KHz	Delta, KHz
160	0	0	0	0	0
80	3.585-3.6	15	3.600-3.625	25	+10
40	7.1-7.105	5	7.100 - 7.120	20	+15
30	10.140-10.150	10	0	0	-10
20	14.095-14.0995 & 14.1005-14.112	16	14.101-14.125	24	+8
17	18.105-18.110	5	0	0	-5
15	21.090-21.100	10	21.100-21.125	25	+15
12	24.925-24.930	5	0	0	-5
10	28.120-28.189	69	28.120 – 28.189	69	0
		_____		_____	_____
Total		**135**		**163**	**+28**

*** Assumes that only transparent data modes are used which are able to be intercepted, over-the-air, for meaning by the public. 2.8 KHz bandwidth allowance for ACDS/Wideband Data. Non ACDS RTTY/Data limited to 500 Hz "peer to peer" operations.**

Monitoring by Third Parties is Not Only Essential... "*It's the Law!!!*"

ITU 25.2A 1A) "Transmissions between amateur stations of different countries shall not be encoded for the purpose of obscuring their meaning, except for control signals exchanged between earth command stations and space stations in the amateur-satellite service." (WRC-03)

ITU25.3 2) "Amateur stations may be used for transmitting international communications on behalf of third parties only in case of emergencies or disaster relief. An administration may determine the applicability of this provision to amateur stations under its jurisdiction." (WRC-03)

Monitoring by Third Parties is Not Only Essential...
"*It's the Law!!!*"

FCC 97.113 (a) (4)

"No amateur station shall transmit messages encoded for the purpose of obscuring their meaning"

Monitoring by Third Parties is Not Only Essential... *"It's the Law!!!"*

FCC DA-13-1918A1

"The primary protection against exploitation of the amateur service and the enforcement mechanism in the amateur service is its self-regulating character"

"To ensure that the amateur service remains a non-commercial service and self-regulates, amateur stations must be capable of understanding the communications of other amateur stations."

19 "We note that a hallmark of enforcement in the amateur service is "self-policing," which depends on an amateur station **hearing** a message being able to determine whether message violate the amateur service rules."

"The Bureaus emphasized that amateur radio operators have been useful in recent years in augmenting essential communication services and providing communications links when normal communication systems are overloaded or unavailable, but are not intended to supplant or replace dedicated public safety communications channels.

"In this proceeding, ARRL argues that there is no basis for assuming that encryption of transmissions in order to obscure their meaning is necessary in order to continue and enhance the utility of amateur radio emergency and disaster relief communications"

Monitoring by Third Parties is Not Only Essential... *"It's the Law!!!"*

- Obscured Traffic Has Been a "Core Issue!"
- Incoming Internet Message Review Needed Prior to Transmission Over RF
- Incoming SPAM Is a Real Issue!
- Unlicensed Incoming Traffic is Uncontrolled, a Major Issue
- Over the Air Decoding Essential
- Require CW ID for ACDS Stations (20 WPM per FCC)
- Require Unaltered Message Viewer for ALL Messages and ALL Service Codes
- Preserve Message Access for Minimum One Year Timeframe
- Maintain Archive of Violations Open to All Amateurs
- Where Possible, Winlink International ACDS in Sync with US ACDS Sub Bands

Third Party Traffic Agreements

FCC Part 97.3 (47)

"*Third party communications.* A message from the control operator (first party) of an amateur station to another amateur station control operator (second party) on behalf of another person (third party)."

Third Party Traffic Agreements

- USA Has Third Party Agreements with Only 53 of 161 IARU Member Countries (No EU Countries, Japan, Russia, China, New Zealand, etc!)
- Conform Winlink or Future Email Systems with Existing 3rd Party Agreements
- Operational Compliance with Existing 3rd Party Agreements
- US Licensees Must Be Blocked from Connection to Non-3rd Party Country ACDS's
- No ACDS Connects from Non-3rd Party Country Amateurs

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Recommendation (1 of 3)
"Win-Win Proposal for Amateur Radio"*

- Combine and modify some features of NPRM 16-239 and RM-11831 into a single "omnibus solution"
- Require openly "over the air" decodable data modes and ban proprietary modes that cannot be readily monitored for meaning by third parties
- Expand Part 97.221(b), "ACDS Sub Bands", as proposed herein, to accommodate increased spectrum demand from open mode ACDS stations and experimental wideband data

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Recommendation (2 of 3)
"Win-Win Proposal for Amateur Radio"*

- Eliminate Part 97.221(c) as described in RM-11831, and confine ALL store and forward email systems to ACDS sub bands
- Eliminate 300 baud symbol rate limit in RTTY/Data sub bands. Establish a 2.8 KHz bandwidth limit in the newly defined Part 97.221(b) ACDS/Wideband sub bands and a 500 Hz bandwidth limit in the remaining RTTY/Data sub bands, thus protecting narrowband modes while accommodating increased ACDS data throughput, along with technology development, other wideband modes and experimentation

- Require CW ID for all ACDS stations

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Recommendation (3 of 3)
"Win-Win Proposal for Amateur Radio"*

- Require buffer and screening of incoming messages from non amateurs sending them into store and forward systems to eliminate misuse and ensure regulatory compliance
- Reinforce the regulatory importance of compliance with Third Party Traffic Agreements, prohibition of commercial content and pecuniary interests
- Proposal resolves longstanding interference issues between ACDS, wideband and narrowband modes, by bandwidth segmentation. Symbol rate limit is no longer a factor in regulation

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